CLAIMS

1. (Currently amended) A method of operating a network access server, the method comprising:

using a first processor in the network access server to perform a routing table lookup for a packet received at an egress port;

determining, from the results of the routing table lookup, a ~~routing table identifier~~ forwarding tag, ~~and~~ a second processor responsible for processing and forwarding the received packet, and a switch fabric stream ID for passing the received packet to the second processor, the second processor selected from a plurality of forwarding processors in the network access server;

passing the ~~routing table identifier~~ forwarding tag and the received packet to the second processor; and

in the second processor, retrieving routing information for the received packet from a forwarding routing table, using the ~~routing table identifier~~ forwarding tag to access the routing information in the forwarding routing table.

2. (Currently amended) The method of claim 1, wherein passing the ~~identifier~~ forwarding tag and the received packet to the second processor comprises

the first processor prepending an intraserver header to the received packet, the header containing the ~~routing table identifier~~ forwarding tag;

sending the received packet to the second processor using the switch fabric stream ID ;

the second processor reading the identifier from the intraserver header; and

the second processor removing the intraserver header from the received packet.

3. (Currently amended) The method of claim 1, further comprising

maintaining a master routing table at a route switch controller within the network access server;

maintaining a distributing routing table at the first processor, the distributing routing table containing entries from the master routing table that allow determination of the appropriate ~~routing table identifier~~ forwarding tag and the appropriate second processor for the received packet; and

maintaining a forwarding routing table at each forwarding processor, the forwarding routing table for a particular forwarding processor keyed to the ~~routing table identifiers~~ forwarding tags known to the first processor and containing entries from the master routing table that allow that forwarding processor to process packets for network access sessions assigned to that processor.

4. (Original) The method of claim 3, wherein maintaining a distributing or forwarding routing table comprises the route switch controller sending routing table updates to the processor associated with that routing table, and that processor updating that routing table.

5. (Currently amended) The method of claim 1, further comprising the first processor sub-classifying the received packet according to layer three or higher headers attached to the packet, wherein the ~~routing table identifier~~ forwarding tag is only sent to the second processor for certain subclasses of received packets.

6. (Original) The method of claim 5, further comprising passing an indication of packet subclass to the second processor.

7. (Previously presented) The method of claim 1, further comprising the first processor passing a processing indication to the second processor, the processing indication informing the second processor as to what processing remains to be done on the packet is stored in an intraserver header.

8. (Currently amended) The method of claim 1, wherein the ~~routing table identifier~~ forwarding tag indicates the ingress port to which the second processor should route the data in the received packet.

9. (Previously presented) A data network access concentrator comprising:

multiple ingress ports, each of the ingress ports having the capability to support data communication over one or more access sessions associated with the ingress port;

at least one egress port to facilitate packet data communication with a data network;

a plurality of forwarding engines to process packets received by the access concentrator and forward processed packets toward an appropriate one of the ingress ports or the at least one egress port, each of the forwarding engines having the capability to support data communication over a plurality of the ingress port access sessions; and

a distribution engine to perform respective routing searches for each of a plurality of packets received at the at least one egress port, and to distribute each of the packets, along with respective results of the respective routing search, to a respective one of the forwarding engines supporting data communication for the ingress port access session associated with the packet, the respective forwarding engine retrieving routing information for the packet from a routing table using the respective results.

10. (Previously presented) The access concentrator of claim 9, further comprising a route switch controller to manage the access sessions associated with the ingress ports.

11. (Previously presented) The access concentrator of claim 10, wherein the route switch controller has the capability to maintain a master routing table and provide routing table updates from the master routing table to the forwarding engines and the distribution engine.

12. (Previously presented) The access concentrator of claim 10, wherein the route switch controller comprises a default forwarding engine, each of the other forwarding engines and the distribution engine having the capability to send a packet to the default forwarding engine when the appropriate route for that packet is unknown to the forwarding or distribution engine attempting to route that packet.

13. (Previously presented) The access concentrator of claim 9,

wherein the distribution engine has the capability to distribute data packets, tunneled packets for a tunnel session terminated at the access server, and voice packets for a packet voice session terminated at the access server; and

wherein the distribution engine comprises a classifier to determine, from header data of a packet, whether that packet can be classified as a tunneled packet or a voice packet.

14. (Previously presented) A data network access concentrator comprising:

data packet communication means for interfacing with a packet data network;

multiple network access means for communicating data associated with a plurality of network access sessions across an access network;

multiple forwarding means for processing data packets and then forwarding those data packets toward either the data packet communication means, for ingress paekets, or toward one of the network access means, for egress packets, each forwarding means associable with multiple network access sessions and at least one network access means, and performing data packet proeessing and forwarding related to those associations; and

distributing means for performing a routing search for a data packet received from the packet data network, and for distributing that data packet, along with a result of the routing search, to a respeetive one of the forwarding means responsible for processing that packet, the respective forwarding means enabled to use the result of the routing search to retrieve information from a routing table.

15. (Currently amended) An apparatus comprising a computer-readable medium containing computer instructions that, when executed, cause multiple processors to perform a method for processing data packets in a network concentrator, the method comprising, for a packet received at an egress port:

using a first processor in the network access server to perform a routing table lookup for a received packet;

determining, from the results of the routing table lookup, a ~~routing table identifier~~ forwarding tag and a second processor responsible for processing and forwarding the received packet, the second processor selected from a plurality of forwarding processors in the network access server;

passing the ~~identifier~~ forwarding tag and the received packet to the second processor; and

the second processor retrieving routing information for the received packet from a forwarding routing table, using the ~~identifier~~ forwarding tag to determine the location of the routing information in the forwarding routing table.

16. (Currently amended) The apparatus of claim 15, wherein passing the ~~identifier~~ forwarding tag and the received packet to the second processor comprises:

the first processor prepending an intraserver header to the received packet, the header containing the ~~routing table identifier~~ forwarding tag;

sending the received packet to the second processor;

the second processor reading the ~~identifier~~ forwarding tag from the intraserver header to determine the location of the routing information in the forwarding routing table; and

the second processor removing the intraserver header from the received packet.

17. (Currently amended) The apparatus of claim 15, wherein the method further comprises: maintaining a master routing table at a route switch controller within the network access server;

maintaining a distributing routing table at the first processor, the distributing routing table containing entries from the master routing table that allow determination of the appropriate ~~routing table identifier~~ forwarding tag and the appropriate second processor for the received packet; and

maintaining a forwarding routing table at each forwarding processor, the forwarding routing table for a particular forwarding processor keyed to the ~~routing table identifiers~~ forwarding tags known to the first processor and containing entries from the master routing table that allow that forwarding processor to process packets for network access sessions assigned to that processor.

18. (Original) The apparatus of claim 17, wherein maintaining a distributing or forwarding routing table comprises the route switch controller sending routing table updates to the processor associated with that routing table, and that processor updating that routing table.

19. (Original) The apparatus of claim 15, wherein the method further comprises the first processor sub-classifying the received packet according to layer three or higher headers attached to the packet, and wherein the routing table identifier is only sent to the second processor for certain subclasses of received packets.

20. (Original) The apparatus of claim 19, wherein the method further comprises passing an indication of packet subclass to the second processor.

21. (Previously presented) The apparatus of claim 15, wherein the method further comprises the first processor passing a processing indication to the second processor, the processing indication informing the second processor as to what processing remains to be done on the packet is stored in an intraserver header.

22. (Original) The apparatus of claim 15, wherein the routing table identifier indicates the ingress port that the second processor should route the data in the received packet to.

23. (Previously presented) The method of claim 1, further comprising receiving the received packet at an egress port of an egress card, the egress card including the first processor.

24. (Previously presented) The method of claim 1, further comprising transmitting at least a portion of the received packet from an output port of a line card, the line card including the second processor.

25. (Previously presented) The access concentrator of claim 9, wherein the distribution engine and the at least one egress port are on an egress card.

26. (Previously presented) The access concentrator of claim 9,
wherein the ingress ports are located on one or more line cards; and
wherein each of the line cards includes one of the forwarding engines.

27. (Previously presented) The access concentrator of claim 11, wherein the master routing table comprises an IP routing table.